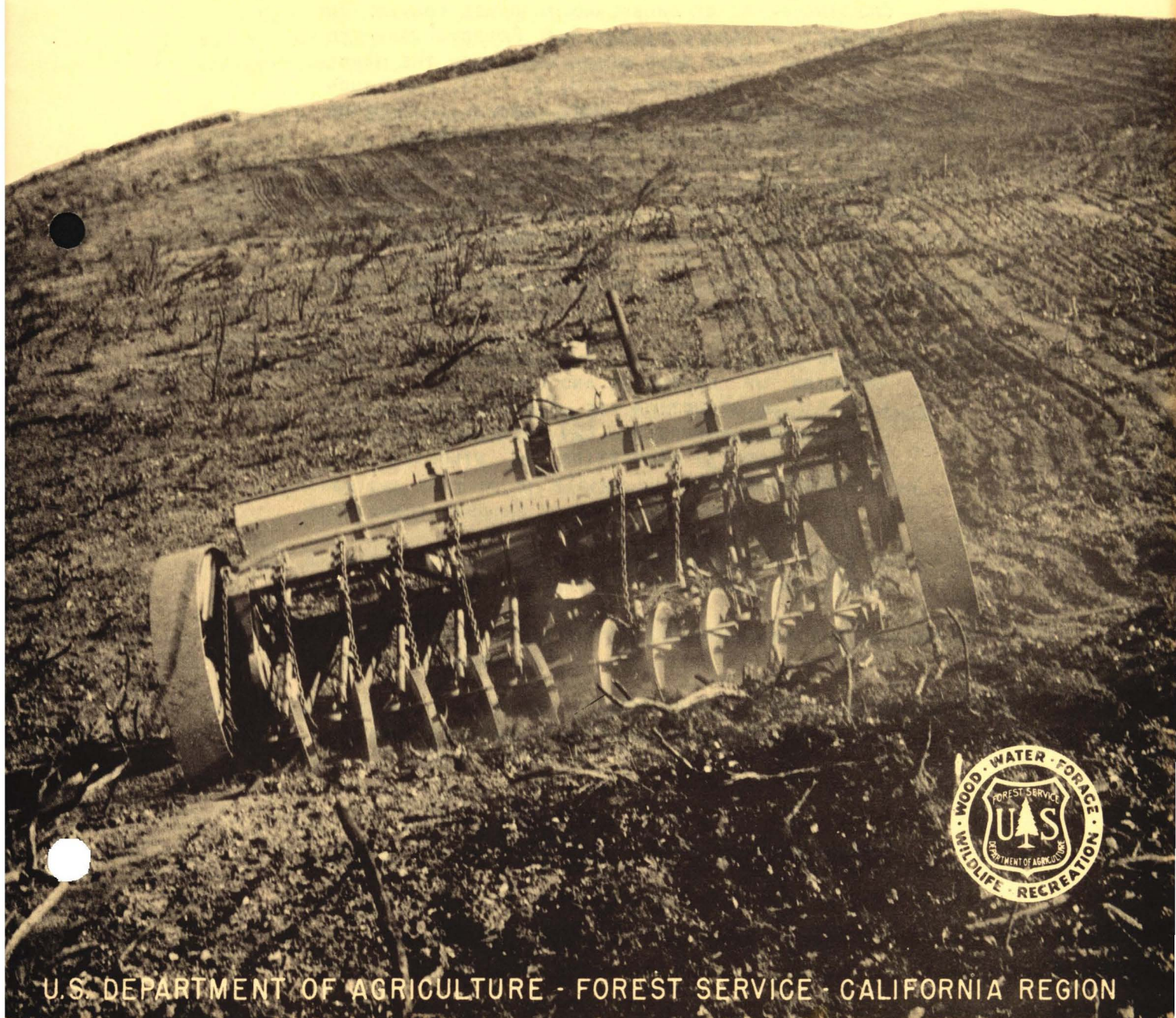


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REVEGETATION PROGRESS...

Range Revegetation Report 1958



U.S. DEPARTMENT OF AGRICULTURE - FOREST SERVICE - CALIFORNIA REGION

THE COVER

SEEDING PHASE OF BRUSHLAND TO GRASS CONVERSION PROJECT ON MENDOCINO NATIONAL FOREST. ADAPTED PERENNIAL GRASS SEED BEING SOWN WITH THE RANGELAND DRILL DEVELOPED BY U. S. F. S. FOR SUCH WILDLAND CONDITIONS. NOTE ESTABLISHED GRASS STAND FROM EARLIER EFFORTS IN BACKGROUND.

BRUSH COVER WAS INITIALLY CRUSHED BY DOZER TO OBTAIN A SAFE, CLEAN BURN WHEN BURNING CONDITIONS OF ADJACENT AREAS WERE UNFAVORABLE. BRUSH SPROUTS AND SEEDLINGS ARE CONTROLLED WITH HERBICIDES IN THE FIRST AND SECOND YEARS FOLLOWING THE BURN.

PRIMARY OBJECTIVES OF THIS EFFORT ARE: (1) BREAKING UP EXTENSIVE AND CONTINUOUS BRUSH-FIELDS AND REDUCTION OF FLAMMABLE FUELS FOR FIRE CONTROL PURPOSES, (2) INCREASED ACCESSIBILITY, AND (3) PRODUCTION OF WILDLIFE AND LIVESTOCK FORAGE.

REVEGETATION PROGRESS REPORT

CALIFORNIA REGION

1958

THE CALIFORNIA REGION'S REVEGETATION ACTIVITY IS AIMED AT IMPROVING AND MAINTAINING WATERSHED CONDITIONS AND PRODUCTION OF DESIRABLE LIVESTOCK AND GAME FORAGE SUPPLIES ON SOME 19,350,000 ACRES OF NATIONAL FOREST LANDS. THIS LAND AREA GENERALLY ENCOMPASSES THE MOUNTAINOUS PORTIONS OF CALIFORNIA, WHICH BY TOKEN OF THEIR LOCATION, POSE NUMEROUS MANAGEMENT PROBLEMS. THESE LANDS ARE CHARACTERIZED BY A WIDE RANGE OF CLIMATE, SOIL AND VEGETATION CONDITIONS. REHABILITATION METHODS, THEREFORE, MUST BE DEVELOPED FOR EACH COMBINATION OF THESE CONDITIONS TO ACHIEVE THE DESIRED RESULTS. THIS PRECLUDES THE USE OF A STANDARDIZED METHOD THROUGHOUT THE REGION. OBVIOUSLY, THE REHABILITATION JOB BECOMES MORE COMPLEX AND COSTLY UNDER SUCH CONDITIONS.

PRODUCTION OF DESIRABLE FORAGE ON MUCH OF THE REGION'S 7,865,000 ACRES OF USABLE RANGE (BY LIVESTOCK) AREA IS SUSTAINED THROUGH MANAGEMENT. HOWEVER, ENCROACHMENT BY UNDESIRABLE PLANTS, HEAVY GRAZING PRESSURES BY LIVESTOCK AND GAME, AND FIRE HAVE SERIOUSLY REDUCED THE PRODUCTIVITY OF GOOD FORAGE ON SOME OF THE RANGE AREAS. HEREIN LIE THE GREATEST OPPORTUNITIES FOR REHABILITATION.

REHABILITATION MEASURES SHOULD BE TAKEN ON AN ESTIMATED 1,200,000 ACRES OF THE CALIFORNIA REGION DURING THE NEXT 20 YEAR PERIOD. THESE ARE NEEDED FOR WATERSHED PROTECTION PURPOSES AND TO INCREASE FORAGE SUPPLIES. INCLUDED IN THE ESTIMATE ARE THE FOLLOWING:

1. SEEDING ADAPTED FORAGE SPECIES IN PREPARED SEEDBEDS ON 200,000 ACRES OF LOW PRODUCING GRASSLANDS.
2. CHEMICAL CONTROL OF SAGEBRUSH ON 75,000 ACRES WITH SUBSEQUENT SEEDING TO ADAPTED FORAGE SPECIES.
3. CHEMICAL CONTROL OF SAGEBRUSH ON 25,000 ACRES FOR RELEASE OF EXISTING NATIVE HERBACEOUS UNDERSTORY.
4. PERMANENT CONVERSION OF 500,000 ACRES OF THE CHAPARRAL TYPE TO GRASSLAND.
5. EMERGENCY SEEDING OF 400,000 ACRES OF WILDFIRE BURNS TO MINIMIZE DAMAGE FROM EROSION AND FLOODS.

ACCOMPLISHMENTS

THE REVEGETATION EFFORT IN 1958 WAS PREDOMINANTLY AN ACTION PROGRAM. HOWEVER, A MINOR BUT VERY ESSENTIAL PHASE OF THE PROGRAM WAS CONCERNED WITH TRIAL SEEDINGS. LACKING BASIC INFORMATION IN MANY INSTANCES RELATING TO METHODOLOGY, SPECIES ADAPTABILITY, ETC., IT HAS BEEN NECESSARY TO DEVELOP THIS KNOWLEDGE LOCALLY.

SEVERAL METHODS WERE USED TO TREAT 21,040 ACRES OF LAND AREA IN THE REGION DURING 1958 (TABLE 1). EMERGENCY SEEDING TO ANNUAL GRASS SPECIES WAS ACCOMPLISHED ON 9600 ACRES OF FOREST SERVICE ADMINISTERED WILDFIRE-BURN-AREA IN SOUTHERN CALIFORNIA. THIS TREATMENT WAS APPLIED TO HASTEN THE ESTABLISHMENT OF PROTECTIVE COVER VEGETATION ON THE DENUDED AREA. FOREST SERVICE PERSONNEL ALSO COOPERATED IN SEEDING 5400 ACRES OF BURNED LANDS IN OTHER OWNERSHIPS.

VARIOUS METHODS OF TREATMENT WERE USED ON 11,500 ACRES OF RANGELAND TO IMPROVE WATERSHED CONDITION AND LIVESTOCK-GAME FORAGE SUPPLIES. THE REGION'S REVEGETATION PROJECT FUNDS FINANCED THE BULK OF THIS EFFORT. TIMELY COOPERATOR ASSISTANCE, HOWEVER, IN THE FORM OF CONTRIBUTED LABOR AND EQUIPMENT (95%) AND DEPOSITED MONIES (5%) WAS OF MATERIAL BENEFIT TO ACCOMPLISHMENT.

REHABILITATION OF WILDLANDS SUCH AS COMPRISE NATIONAL FORESTS OF CALIFORNIA, REQUIRES EQUIPMENT ADAPTED TO EXISTING CONDITIONS.

GENERALLY, THAT WHICH IS AVAILABLE COMMERCIALY IS INADEQUATE FOR OUR PURPOSES. IT HAS THEREFORE BEEN NECESSARY TO DESIGN AND/OR MODIFY EQUIPMENT TO MEET SPECIFIC NEEDS. AN EQUIPMENT CARRIER AND SLIP-ON SPRAY UNIT FOR A D-7 TRACTOR WERE TWO SUCH ITEMS DEVELOPED IN 1958. NEW PURCHASES DURING THE YEAR INCLUDED THREE RANGELAND DRILLS, FIVE RANGELAND DRILL FERTILIZER ATTACHMENTS, FOUR GASOLINE ENGINE-DRIVEN BROADCAST SEEDERS, ONE D-7 SLIP-ON SPRAY UNIT AND SEVEN EQUIPMENT CARRIERS. EQUITABLE DISTRIBUTION OF SUITABLE EQUIPMENT AMONGST THE NATIONAL FORESTS OF THE REGION WAS THEREBY IMPROVED.

AN INCREASE IN ACCOMPLISHMENT CAN BE EXPECTED THROUGH MORE EFFICIENT USE OF FUNDS AND REDUCED TREATMENT COSTS.

TABLE I
ACREAGE AND EXPENDITURES BY TREATMENT - 1958

TREATMENT	ACREAGE	EXPENDITURE			UNIT COST
		USFS	COOPERATOR	TOTAL	
<u>SEEDED</u>					
PREPARED SEEDBED	997 1/	\$ 7,041	\$ 1,071	\$ 8,112	\$ 8.14
NATURAL SEEDBED	234	1,286	--	1,286	5.49
PLANNED BURN	82 2/	149	627	776	9.46
ACCIDENTAL BURN					
(A) GRAZING	1567	4,570	452	5,022	3.20
(B) FLOOD CONTROL 3/	9600	25,820	--	25,820	2.68
COMPETITION REMOVED	362	6,390	530	6,920	19.12
TEST PLOTS	30	1,548	--	1,548	51.59
SKID ROADS	8	--	175	175	21.87
FERTILIZED	75	212	40	252	3.36
<u>UNSEEDED</u>					
COMPETITION REMOVED	7725	45,923	10,590	56,513	7.32
CONTROL, NOXIOUS FARM WEEDS	30	506	--	506	16.87
<u>WATER SPREADING</u>	330	3,668	100	3,768	11.42
TOTAL	21,040	97,113	13,585	110,698	5.26
FENCING (PROTECTION - MANAGEMENT), MILES	9.6	6,733	--	6,733	710/ MILE

1/ SEEDBED PREPARATION ONLY ON 250 ACRES.

2/ INCLUDES ONLY PROJECTS FULLY COMPLETED IN 1958.

3/ FINANCED WITH EMERGENCY FLOOD CONTROL FUNDS.

FINANCING

FUNDS AVAILABLE FOR REVEGETATION ACTIVITIES IN 1958 AMOUNTED TO \$116,800 (FIGURE 1). INCLUDED IN THIS TOTAL WERE \$21,250 FROM THE DIVISIONS OF FIRE CONTROL AND TIMBER MANAGEMENT FOR TYPE CONVERSION PURPOSES. AN ADDITIONAL \$13,600 IN THE FORM OF COOPERATOR PARTICIPATION WENT INTO THE PROGRAM (TABLE 1).

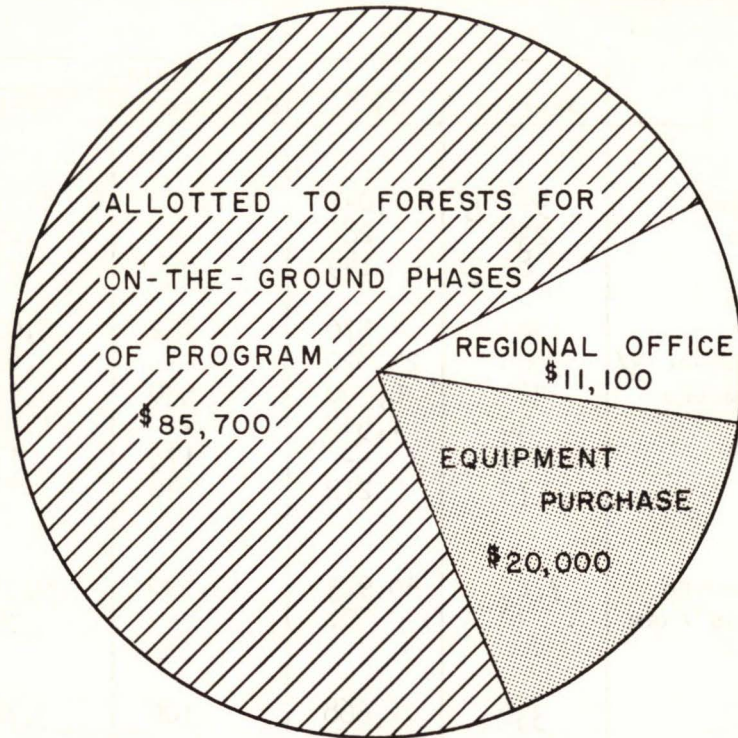


Fig. 1-Distribution of Revegetation Monies, 1958

SEVENTY THREE PERCENT OF AVAILABLE FEDERAL MONIES WERE UTILIZED BY THE FORESTS OF THE REGION FOR ACTUAL APPLICATION OF IMPROVEMENT MEASURES. COMBINED WITH THE 17% EXPENDITURE FOR EQUIPMENT, 90% OF THE FUNDS WERE APPLIED TO ON-THE-GROUND PHASES OF THE PROGRAM. TEN PERCENT OF THE PROJECT FUNDS WERE USED FOR SALARY AND TRAVEL OF THE SECTION LEADER AND MISCELLANEOUS OVERHEAD COSTS.

COSTS

AVAILABLE FUNDS IN 1958, INCLUDING COOPERATOR CONTRIBUTIONS, FOR RANGE REHABILITATION PURPOSES WERE EXPENDED AS SHOWN IN FIGURE 2. THIS EXCLUDES WILDFIRE-BURN SEEDINGS IN SOUTHERN CALIFORNIA WHICH WERE FINANCED WITH EMERGENCY FUNDS PROVIDED BY CONGRESS FOR FLOOD CONTROL PURPOSES.

THREE-FOURTHS OF EACH AVAILABLE DOLLAR WENT INTO ON-THE-GROUND PHASES OF THE PROGRAM. MOST OF THE REMAINING ONE-QUARTER WAS USED FOR THE PURCHASE OF SUITABLE EQUIPMENT. ONE-HALF OF EACH DOLLAR WAS CONCERNED WITH CONTROL OF UNDESIRABLE VEGETATION BY MECHANICAL AND CHEMICAL MEANS FOR RELEASE PURPOSES AND DID NOT INCLUDE SEEDING. ABOUT ONE-FIFTH OF EACH DOLLAR FINANCED IMPROVEMENT MEASURES WHICH INVOLVED SEEDING OF FORAGE SPECIES AS A PART OF TREATMENT.

COMPARATIVE COSTS OF THE VARIOUS METHODS OF TREATMENT APPLIED TO NATIONAL FOREST LANDS LAST YEAR ARE SHOWN IN FIGURE 3. A VAST RANGE IN COSTS IS APPARENT BETWEEN THE VARIOUS CATEGORIES OF TREATMENT. AVAILABILITY OF EQUIPMENT AND MATERIALS, TOPOGRAPHY, LOCATION AND COVER VEGETATION OF PROJECT AREAS, AND EXPERIENCE OF FIELD PERSONNEL ARE SEVERAL FACTORS INFLUENCING COSTS.

NUMEROUS FACTORS INFLUENCE COSTS AND RESULT IN A MATERIAL DIFFERENTIAL BETWEEN METHODS OF TREATMENT. THE FOLLOWING TABULATION ILLUSTRATES COST DIFFERENCES FOR TWO TREATMENT METHODS; "PREPARED SEEDBED" AND "COMPETITION REMOVED", BOTH OF WHICH INVOLVED SEEDING.

METHOD	SEEDBED PREPARATION	SEED	SEEDING	TOTAL
"PREPARED SEEDBED"	\$4.25	\$2.00	\$3.00	\$9.25
"COMPETITION REMOVED"	7.64	3.53	7.95	19.12

SEEDBED PREPARATION FOR THE "PREPARED SEEDBED" CATEGORY WAS ACCOMPLISHED BY PLOWING, DISCING OR HARROWING. IN CONTRAST, PREPARATION OF SEEDBEDS FOR THE "COMPETITION REMOVED" CATEGORY INCLUDED SUCH ITEMS AS DOZER CLEARING AND CRUSHING, BURNING AND CHEMICAL CONTROL. SPECIES OF SEED AND SEEDING RATE ACCOUNTED FOR THE SEED COST DIFFERENTIAL OF THE TWO METHODS. THE INDICATED RANGE IN SEEDING COSTS WAS LARGELY THE RESULT OF DIFFERENCES IN LOCATION, TOPOGRAPHY, ACCESSIBILITY, AND SEEDBED CONDITION OF PROJECT AREAS. SIMILAR FACTORS ACCOUNT FOR THE COST VARIABILITY IN OTHER METHODS OF TREATMENT.

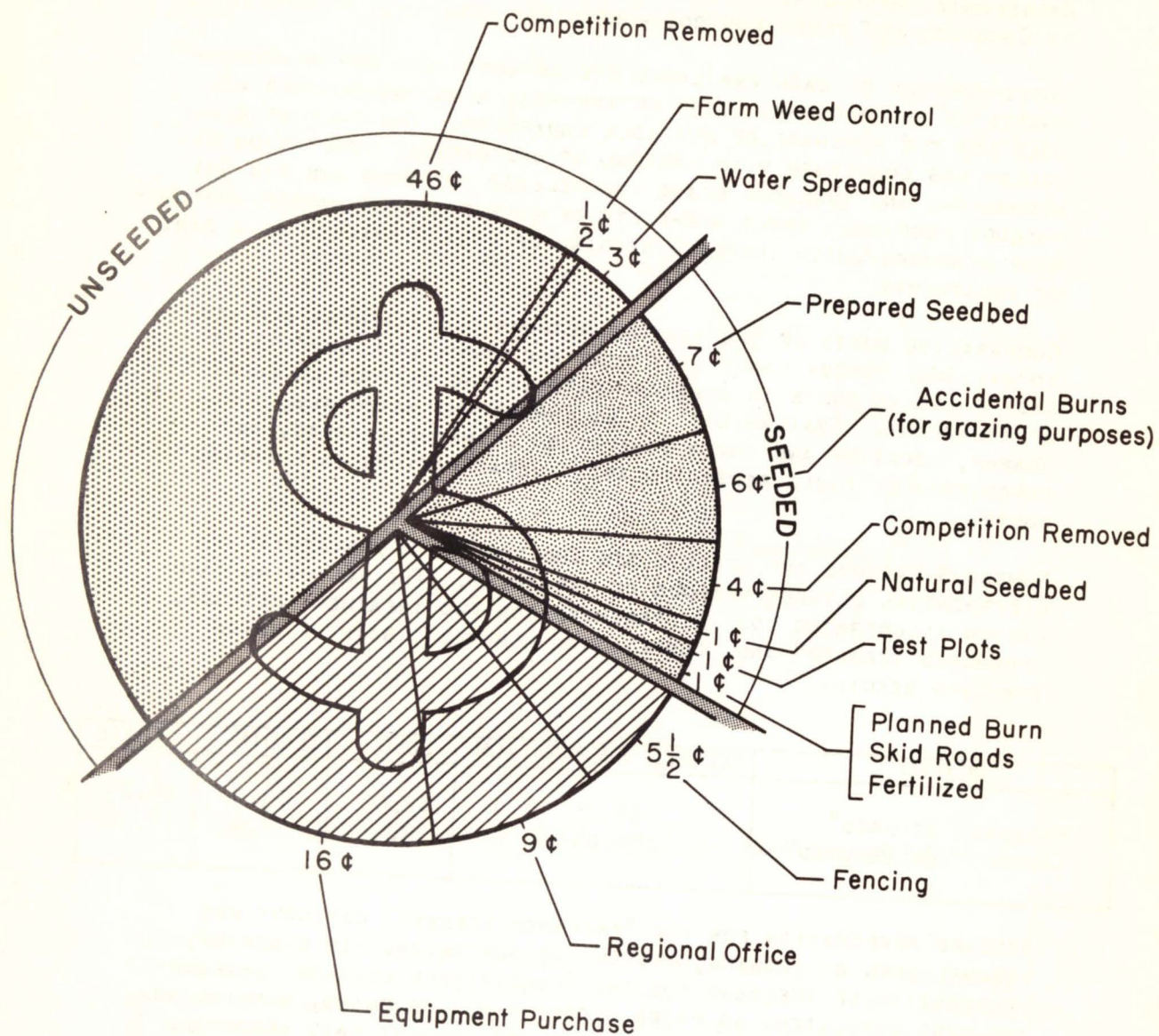


Fig. 2 - How R-5's 1958 Revegetation Dollar was Spent

WITH SEEDING

Prepared seedbed

Natural seedbed

Planned burn

Accidental burn-grazing

Accidental burn-flood control

Competition removed

Test plots

Skid roads

Fertilized

WITHOUT SEEDING

Competition removed

Waterspreading

Farm weed control

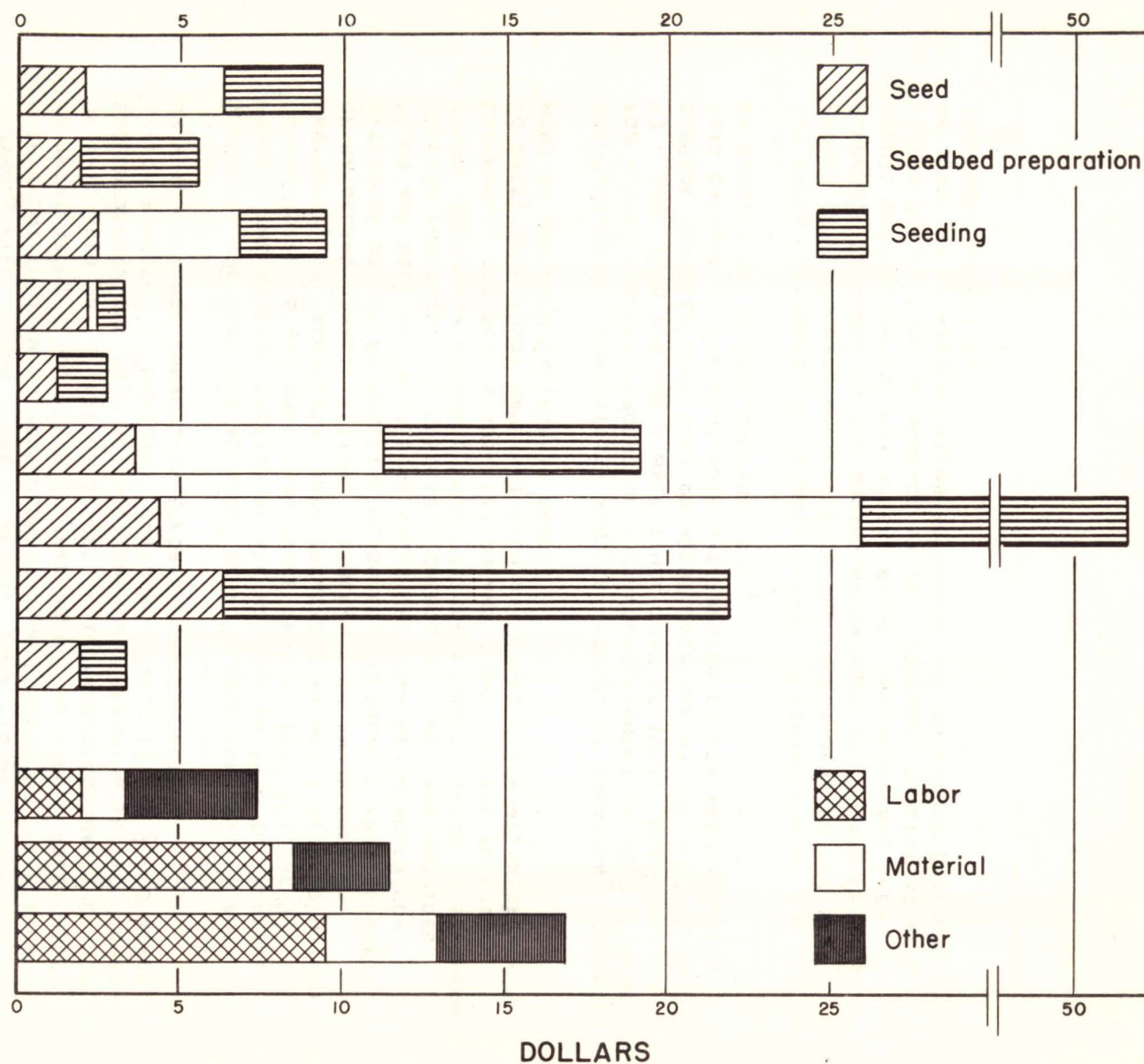


Fig. 3-Average Itemized Costs per acre by Treatment Method

THE INDICATED TREATMENT COSTS MAY APPEAR EXCESSIVE IN SOME INSTANCES TO A RANCH OPERATOR. THIS CAN BE EXPLAINED LARGELY BY THE METHOD USED TO ARRIVE AT COST FIGURES. DATA SHOWN IN FIGURE 3 INCLUDES COSTS OF SUPERVISION, EQUIPMENT RENTAL, TRANSPORTATION OF PERSONNEL AND EQUIPMENT, PROJECT PLANNING AND SIMILAR ITEMS IN ADDITION TO THE ACTUAL "DOING" COSTS. FREQUENTLY AN OPERATOR WILL CONSIDER SUCH COSTS AS PART OF HIS NORMAL OPERATION AND DOES NOT ASSESS THEM AGAINST A GIVEN PROJECT.

NO SPECIFIC REFERENCE HAS BEEN MADE HEREIN TO AN ACTIVITY COMMONLY REFERRED TO AS "TYPE CONVERSION". THIS IS CONCERNED WITH THE REHABILITATION OF CHAPARRAL BRUSHLANDS EITHER FOR TIMBER, FIRE CONTROL, WILDLIFE OR RANGE PURPOSES. ON A FISCAL YEAR BASIS, SUFFICIENT FUNDS WERE PROVIDED NATIONAL FORESTS OF THE REGION TO TREAT ABOUT 8,000 ACRES OF THIS BRUSHLAND TYPE. ABOUT HALF OF THIS AREA IS IN VARIOUS STAGES OF TREATMENT AND WAS THEREFORE EXCLUDED FROM THE 1958 ACCOMPLISHMENT. APPEARING IN THE "COMPETITION REMOVED" - "UNSEEDED" CATEGORY (TABLE 1) ARE 3,400 ACRES ON WHICH PLANNED CONVERSION EFFORTS WERE COMPLETED.

EXCLUDING THE "ACCIDENTAL BURN" AREA "SEEDED FOR GRAZING PURPOSES", THE ACREAGE TREATED BY ALL METHODS IN 1958 TO INCREASE FORAGE SUPPLIES WAS MORE THAN TWICE THAT OF 1957 (FIGURE 4). OBVIOUSLY, THE ACCIDENTAL BURN TREATMENT IS NOT A PLANNED METHOD OF RANGELAND REHABILITATION. RATHER, IT IS AN UNFORESEEN SITUATION REQUIRING REMEDIAL MEASURES. REGULARLY APPROPRIATED FUNDS ARE USED TO TREAT SUCH AREAS THAT CAN BE IMPROVED FOR GRAZING PURPOSES. IN CONTRAST, EMERGENCY FUNDS ARE PROVIDED BY THE SECRETARY OF AGRICULTURE TO TREAT BURNED AREAS IN SOUTHERN CALIFORNIA FOR SOIL STABILIZATION AND FLOOD CONTROL PURPOSES. TO DATE, SUCH FUNDS HAVE NOT BEEN AVAILABLE FOR SIMILAR TREATMENT OF NORTHERN CALIFORNIA BURNS.

THE "UNSEEDED - COMPETITION REMOVED" METHOD OF TREATMENT ACCOUNTED FOR ALMOST SEVENTY PERCENT OF THE ACCOMPLISHMENT IN 1958 (FIGURE 4) - MORE THAN TWO AND A HALF TIMES THAT OF 1957. CHEMICAL CONTROL MEASURES WERE USED ON ABOUT ONE-HALF OF THE ACREAGE IN THIS CATEGORY. THE REMAINDER WAS TREATED EITHER MECHANICALLY, BY BURNING OR IN SOME COMBINATION.

THE EXTENT OF RANGELAND REHABILITATION IS CONTROLLED BY THE AMOUNT OF FUNDS MADE AVAILABLE TO THE FOREST SERVICE FOR THAT PURPOSE. COMPARED TO THE GROSS IMPROVEMENT JOB IN THE REGION, ANNUAL ACCOMPLISHMENT MAY APPEAR RATHER INSIGNIFICANT WHEN VIEWED SOLELY FROM AN ACREAGE BASIS. HOWEVER, QUALITY AS WELL AS QUANTITY OF RESULTS NEEDS BE CONSIDERED TO FAIRLY EVALUATE TREATMENT BENEFITS.

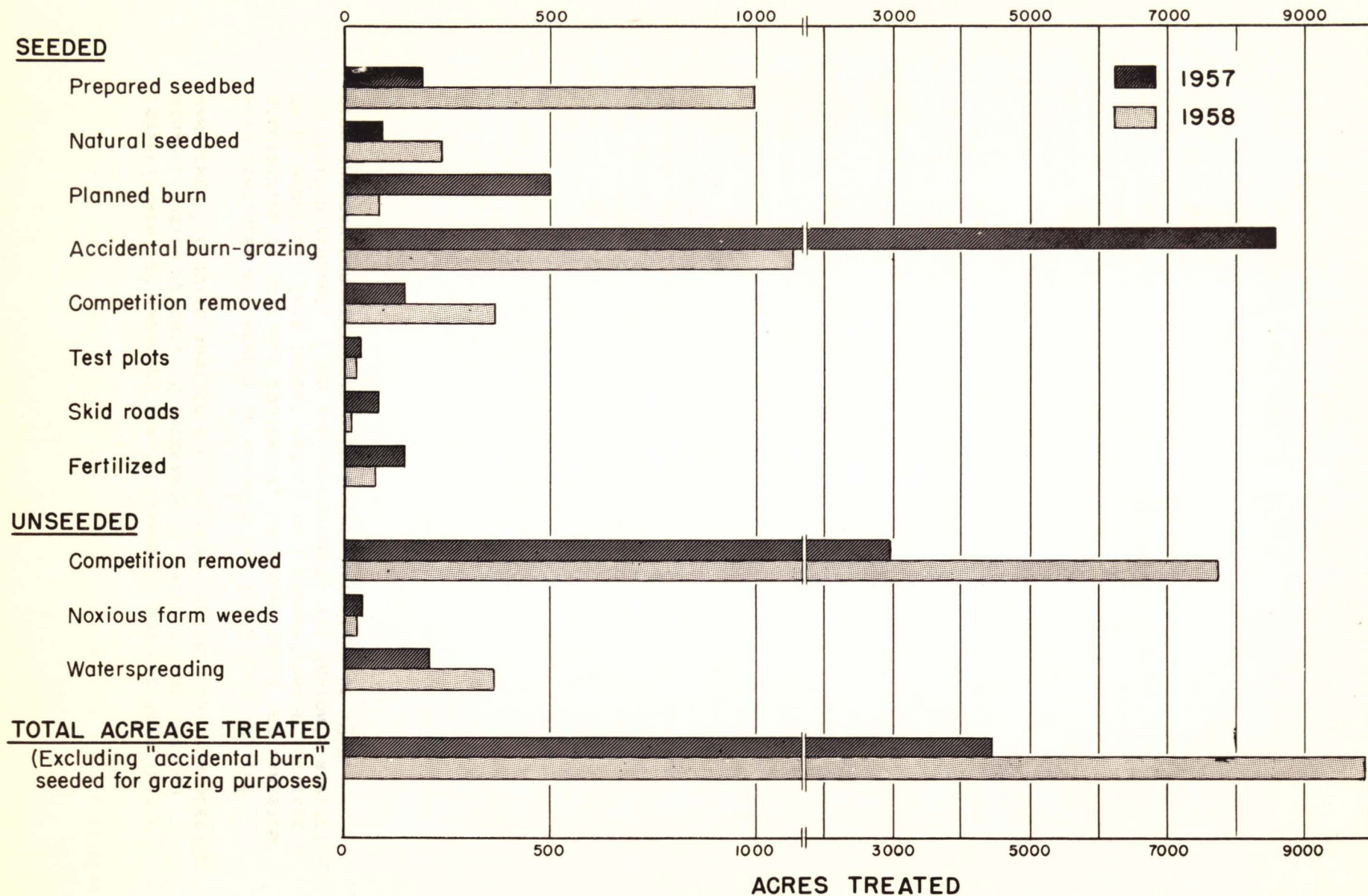


Fig. 4 - Comparative Accomplishment by Treatment Method in 1957 & 1958

ESTABLISHMENT OF IMPROVED FORAGE STANDS IS BUT ONE STEP IN THE REHABILITATION EFFORT. MAINTENANCE OF THOSE STANDS THROUGH MANAGEMENT IS QUITE ANOTHER AND ONE WHICH IS FREQUENTLY NEGLECTED.

WITH CONTINUED REFINEMENT OF METHODS AND TECHNIQUES AND THE ACQUISITION OF SUITABLE EQUIPMENT, TREATMENT COSTS ARE EXPECTED TO BE REDUCED. THIS SHOULD RESULT IN A PROPORTIONATE INCREASE IN TREATED ACREAGE. FROM ALL INDICATIONS, THE REGION'S REVEGETATION PROGRAM FOR NEXT YEAR WILL APPROXIMATE THAT OF 1958.